Benchmark Tests for Simpsh program compared to Bash and Dash

Using same a0.txt file as grading script

Test 1: Heavy duty command operations

Simpsh command:

./simpsh --profile --rdonly a0.txt --pipe --wronly output.txt --wronly outerr.txt --command 0 2 4 tr A-Z a-z --command 1 3 4 sort --wait

Bash/Dash script command:

(tr A-Z a-z < a0.txt | sort) 2> outerr.txt

Test 2: Multiple pipelines

./simpsh --profile --rdonly a0.txt --rdwr a1.txt --rdwr output.txt --rdwr outerr.txt --pipe --pipe --command 0 1 3 cat --command 1 5 3 cat --command 4 7 3 cat --command 6 2 3 cat --wait

Bash/Dash Script Command
(cat a0.txt > a1.txt && cat a1.txt | cat | cat > output.txt) 2> outerr.txt

Test 3: Multiple read writes

Simpsh command:
./simpsh --profile --rdonly a0.txt --rdonly a1.txt --rdonly a2.txt --wronly a3.txt --wronly a4.txt --wronly a5.txt --wronly outerr.txt --command 0 3 6 cat --command 1 4 3 cat --command 2 5 3 cat --wait

Bash command:
(cat a0.txt > a3.txt && cat a1.txt > a4.txt && cat a2.txt > a5.txt) 2>outerr.txt

Results:

	Simpsh	Bash	Dash
Test 1	Parent: 0.00000s usr time 0.0001s sys time Children: 5.798s usr time 0.370s sys time	Parent: 0.003s usr time 0.002s sys time Children: 5.701s usr time 2.544s sys time	Parent: 0.000s usr time 0.000s sys time Children: 5.90s usr time 2.45s sys time
Test 2	Parent: 0.0000s usr time 0.0001s sys time Children: 0.001s usr time 0.274s sys time	Parent: 0.002s usr time 0.003s sys time Children: 0.002s usr time 0.292s sys time	Parent: 0.000s usr time 0.000s sys time Children: 0.000s usr time 0.300s sys time
Test 3	Parent: 0.0000s usr time 0.0001s sys time Children: 0.002s usr time 0.282s sys time	Parent: 0.001s usr time 0.004s sys time Children: 0.001s usr time 0.277s sys time	Parent: 0.000s usr time 0.000s sys time Children: 0.000s usr time 0.270s sys time

Conclusions:

From my results one general trend that seems to emerge is that the simpsh program tends to have a faster system time in its child processes than both bash and dash. This is most significantly seen when the user workload in the child processes are high, as in test 1. Simpsh also reliably has faster user and system times in the parent process when compared to bash. Comparisons with dash are difficult to make because the (times) precision when using dash appeared to only extend to 2 digits. Bash was noticeably faster than simpsh in children user time in test 1, while dash was significantly slower than both simpsh and bash. However, for the last test, involving only multiple

reads and writes, dash scored the fastest times, while bash and simpsh had similiar times.